

Serial No. 09/998,684
Docket No.: 60,130-1280
00MRA0088

REMARKS

Reconsideration and allowance are respectfully requested. Claims 1-23 are currently pending and stand finally rejected by the Examiner. No new matter has been added.

§ 103 rejections

Claims 1-5, 8-13, 16, 18 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,665,179 to Isawa et al. ("Isawa") in view of U.S. Patent No. 6,024,893 to Keil et al. ("Keil"). Applicant respectfully traverses this rejection.

The Office Action admitted that Isawa does not teach regulating nitriding potential, but asserted that "it would have been obvious. . .to have used the nitriding potential controlling method of Keil et al in the method of Isawa et al because the controlling method produces high quality nitrided parts" (p. 3). The Office Action also stated that "while the prior art may not expressly disclose selecting a nitriding potential based on the steel composition selected, one of ordinary skill in the art was aware that steel composition affected the ability of nitrogen to be absorbed. Thus, one of ordinary skill in the art would have found it obvious to select a nitriding potential based on the steel composition chosen" (p. 10). Applicant respectfully disagrees.

As noted in the previous response, Keil does not recognize that different types of steel may call for different nitride potentials, much less teach selecting a nitriding potential based on the type of steel in a coil spring and regulating the nitride potential based on that selected value. In fact, Keil's entire focus is on using an existing ammonia disassociator to generate a reference gas so that the system only needs one oxygen probe (col. 1, line 63 to col. 2, line 18). The claimed invention, by contrast, focuses on customizing the nitriding process to the type of steel being treated selecting a nitriding potential based on the type of steel and then regulating the nitriding potential based on the selected value.

Although the last paragraph on page 390 of "Gas Nitriding," which was provided by the Examiner, does mention that case depth and case hardness vary with steel composition, this teaching does not render the claimed invention obvious. "Gas Nitriding" only recognizes that different steel compositions have different case depth and hardness properties, but this alone does not suggest the step of selecting a nitriding potential based on the type of steel.

In fact, the last paragraph of the introductory page of "Gas Nitriding" appears to indicate that control over the case hardness and depth for a given steel composition is conducted by heat

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treatment of the steel before nitriding and not during the nitriding process itself. The second and third columns of "Gas Nitriding" outline a typical nitriding process that does not include any suggestion of selecting a nitriding potential based on the steel composition. Instead, "Gas Nitriding" appears to teach modifying the heat treatment step based on the steel composition so that the same nitriding procedure can be used for different steel composition to compensate for their different core hardnesses to obtain desired results in the case depth and hardness.

Applicant respectfully notes that without a more complete copy of the "Gas Nitriding" reference, a more thorough response is not possible. If the Examiner wishes to reiterate the rejection based on this reference, Applicant respectfully requests a more complete copy of the reference and notes that a final rejection would be improper.

Based on the combined teachings of Isawa and Keil and the information known in the art as reflected in "Gas Nitriding," one of ordinary skill in the art would have focused on varying the heat treatment steps for different types of steel before nitriding, not selecting the nitriding potential itself based on the type of steel like the claimed invention.

Because neither Isawa nor Keil teach selecting a nitriding potential based on the type of steel in a coil spring, the Office Action fails to establish a prima facie case of obviousness with respect to claims 1-5, 8-13, 16 and 18 and 21. Withdrawal of the rejection is therefore respectfully requested.

Claims 1, 3-16, 18 and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Isawa in view of Applicant's admitted prior art ("Applicant's APA") and "Modern Surface Treatments". Applicant respectfully traverses this rejection.

The Office Action admitted that Isawa does not teach regulating a nitriding potential, but asserted that it would have been obvious to incorporate the process disclosed in "Modern Surface Treatments" to suggest the claimed invention. Applicant respectfully disagrees.

As admitted by the Examiner, none of the prior art expressly discloses selecting a nitriding potential based on the type of steel. Further, as noted above, it would not have been obvious to select a nitriding potential based on the type of steel because the prior art focuses on controlling the pre-nitriding heat treatment (not the nitriding potential itself) to handle different steel compositions.

As noted in the previous response, "Modern Surface Treatments" at best teaches a process for controlling the nitriding potential without providing any specific guidance on how to

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determine the appropriate nitriding potential in the first place. Like the other prior art references, "Modern Surface Treatments" assumes that the nitriding potential is the same for different types of steel. Thus, one of ordinary skill again would have been led to control the pre-nitriding heat treatment process for different steel compositions so that the same nitriding potential can be used for different steel compositions during nitriding.

Thus, nothing in Isawa, Applicant's APA, or "Modern Surface Treatments" teaches selecting a nitriding potential based on a type of steel in a coil spring or any other structure. The Office Action therefore fails to establish a prima facie case of obviousness with respect to claims 1, 3-16, 18 and 21, and withdrawal of the rejection is respectfully requested.

Claims 17 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Isawa in view of Keil or "Modern Science Treatments" as applied to claims 1 and 10 and further in view of U.S. Patent No. 5,108,544 to Hakansson ("Hakansson") and U.S. Patent No. 4,023,989 to Dobo ("Dobo"). Applicant respectfully traverses this rejection.

Claims 17 and 20 depend on patentable independent claims 1 and 10, respectively, and are therefore patentable for the reasons explained above. As noted in the previous response, adding Hakansson and Dobo to the combination still fails to teach the claimed invention because Hakansson and Dobo focus on removing material from a steel surface, not on selecting a nitriding potential based on the type of steel being treated. Thus, the Office Action fails to establish a prima facie case of obviousness with respect to claims 17 and 20, and withdrawal of the rejection is respectfully requested.

Claims 19, 22 and 23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Isawa in view of Keil or "Modern Science Treatments" as applied to claims 1, 10 and 11 and further in view of U.S. Patent No. 5,009,843 to Sugimoto ("Sugimoto"). Applicant respectfully traverses this rejection.

Claims 19, 22 and 23 depend on patentable independent claim 1 or 10 and are therefore patentable for the reasons explained above. As noted in the previous response, nothing in Sugimoto even addresses nitriding, much less teach selecting a nitriding potential based on the type of steel being treated. Thus, the Office Action fails to establish a prima facie case of obviousness with respect to claims 19, 22 and 23, and withdrawal of the rejection is respectfully requested.

All objections and rejections having been addressed, it is respectfully submitted that the

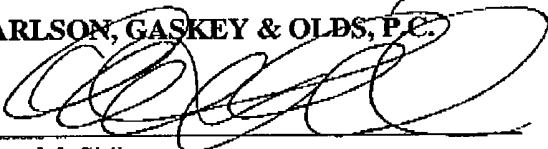
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present application is in condition for allowance, and a Notice to that effect is earnestly solicited.

Applicant believes that no additional fees are necessary, however, the Commissioner is authorized to charge Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds for any additional fees or credit the account for any overpayment.

Respectfully Submitted,

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